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TITLE: Rotary electric machine and electric vehicle using the same

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US-CL-CURRENT: 310/216; 310/168 ; 310/261

CLAIMS:

What is claimed is:

1. A rotary electric machine comprising a stator having a stator core wound with stator windings; and a rotor having a rotatable rotor core arranged opposite to said stator core through a gap, wherein said rotor core has a number of magnetic poles corresponding to a plurality of projecting poles arranged on a side of said gap and along a circumferential direction of said rotor core and a plurality of rotor yokes, each of said rotor yokes forming a magnetic path for conducting magnetic flux of adjacent ones of said projecting poles, said rotor core being divided in the circumferential direction by the number of magnetic poles of

said

rotor core into divided rotor core portions, adjacent ones of said divided rotor core portions forming a respective one of said magnetic poles.

2. A rotary electric machine according to claim 1, wherein a position of said division is at each middle position of a width in the circumferential direction of said projecting poles.

3. A rotary electric machine according to claim 2, wherein said rotor core is made of a different material from a material of said stator core.

4. A rotary electric machine according to claim 1, wherein said rotor core is made of a different material from a material of said stator core.

5. A rotary electric machine comprising a stator having a stator core wound with stator windings; and a rotor having a rotatable rotor core arranged opposite to said stator core through a gap, wherein said rotor core has a number of magnetic poles and respectively comprises a plurality of permanent magnets arranged and embedded therein on a side of said gap and along a circumferential direction of said rotor core and a plurality of rotor yokes, each of said rotor yokes forming a magnetic path for conducting magnetic flux of adjacent ones of said permanent magnets, said rotor core being divided in the circumferential direction by the number of magnetic poles of said rotor core into divided rotor core portions, adjacent ones of said divided rotor core portions forming a respective one of said magnetic poles.

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6. A rotary electric machine according to claim 5, wherein a position of said division is at each position between the poles of said permanent magnets.

7. A rotary electric machine according to claim 6 wherein said rotor core is made of a different material from a material of said stator core.

8. A rotary electric machine according to claim 5 wherein said rotor core is made of a different material from a material of said stator core.

9. An electric vehicle comprising a battery for supplying electric power; a rotary electric machine for outputting drive torque to drive the vehicle by said supplied electric power; and a controller for controlling said drive torque, wherein said rotary electric machine comprises a stator having a stator core wound with stator windings; and a rotor having a rotatable rotor core arranged opposite said stator core through a gap, and said rotor is formed of a rotor core divided in a circumferential direction of said rotor core in a unit forming each magnetic pole of said rotor core and a holding member having an I-shaped cross section for holding said rotor core, said holding member having an I-shaped cross section being disposed an inner peripheral side of said rotor core in order to lengthen a driving distance per charge of said vehicle by reducing the vehicle weight.